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(71) Applicant

Colin Paul Griffiths

South Lodge, Dunnymans Road, Banstead, Surrey,  
SM7 1AN, United Kingdom

(72) Inventor

Colin Paul Griffiths

(74) Agent and/or Address for Service

Raworth Moss & Cook

Raworth House, 36 Sydenham Road, Croydon, Surrey,  
CR0 2EF, United Kingdom

(51) INT CL<sup>5</sup>

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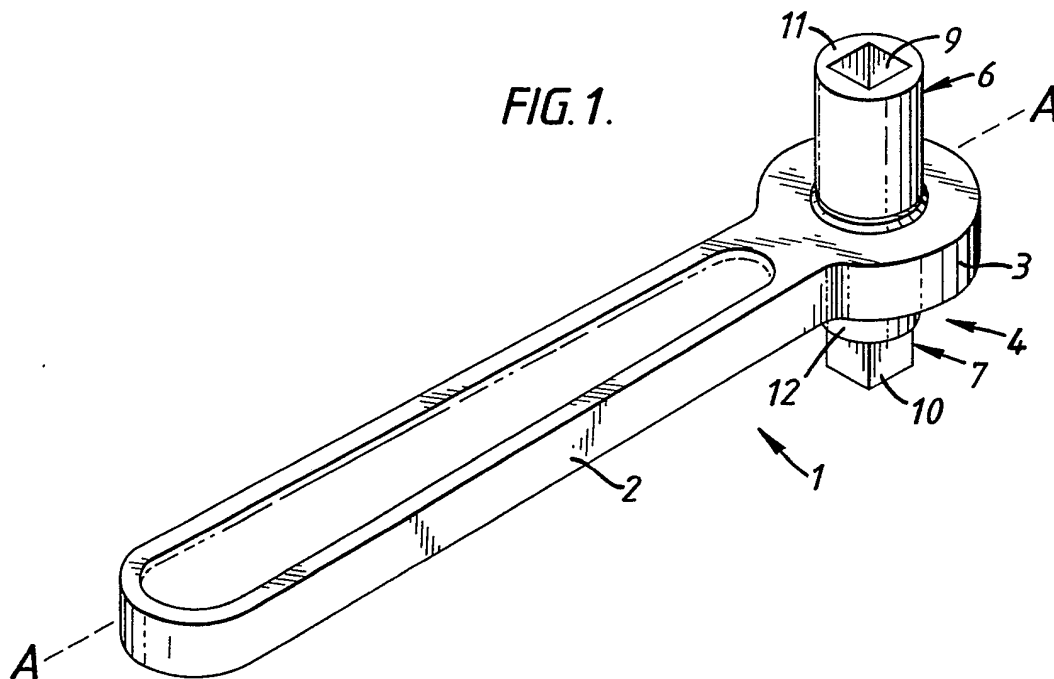
(58) Field of search

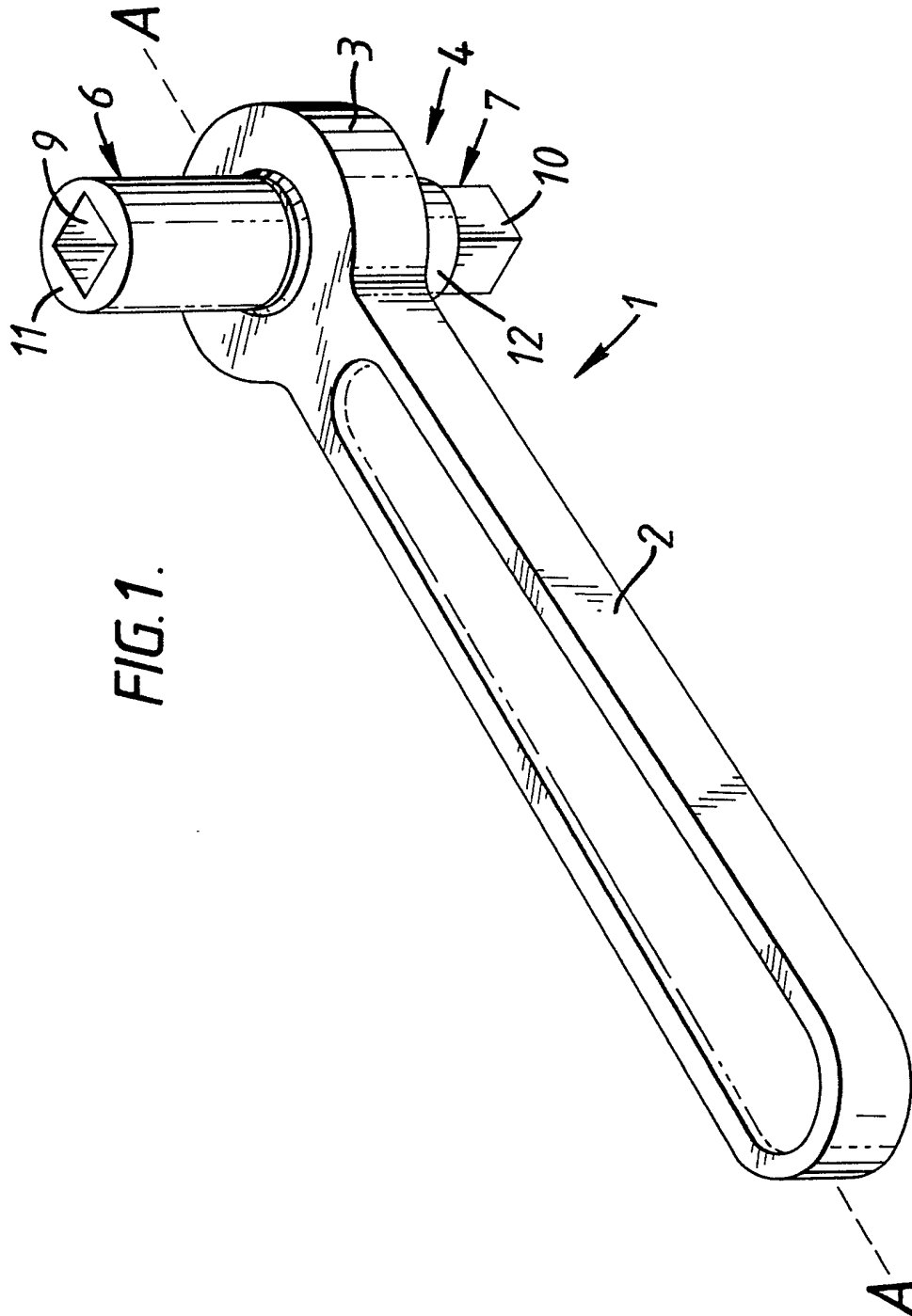
UK CL (Edition K) B3N

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(54) Hand tool

(57) The tool comprises a handle 2 having a rotatable member 4 mounted thereto, the rotatable member having a head 6 extending in one direction and a tail 7 extending in a second and opposite direction, the head and tail 6, 7 having means to receive a drive at the head and a tool or tool extension at the tail. The rotatable member 4 is mounted by means of a bearing such as a flush bearing which may have a ball or roller bearing race or a ball joint bearing.





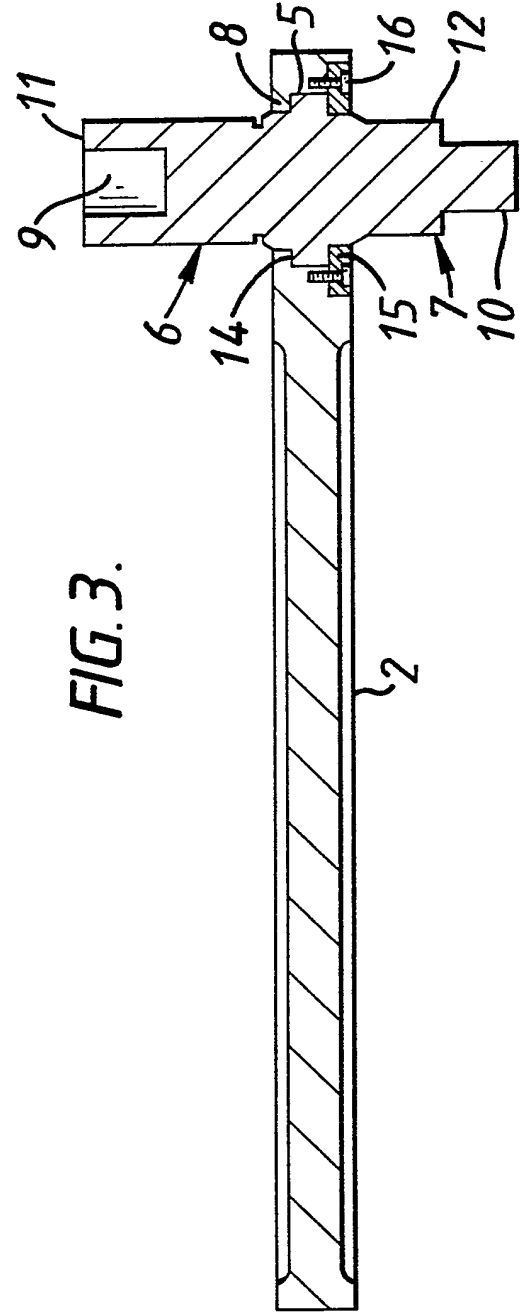
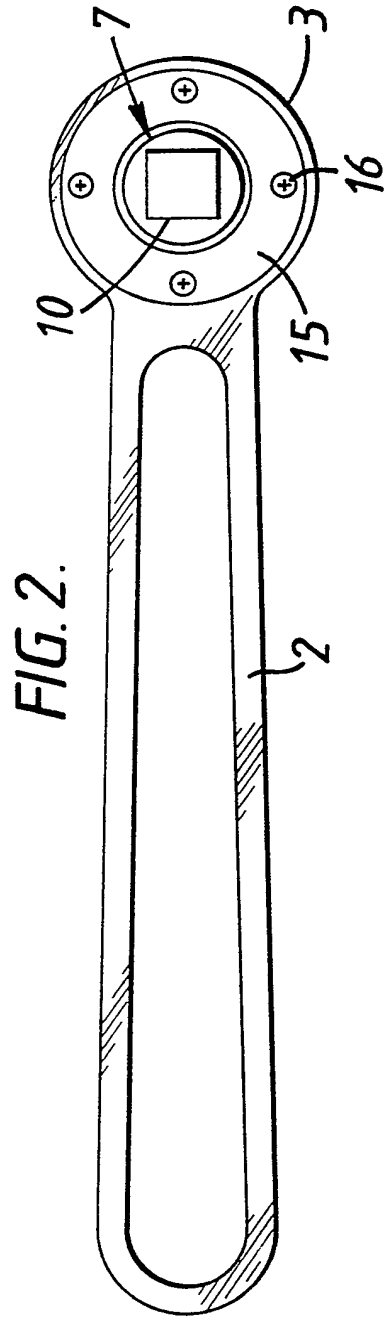


FIG. 4.

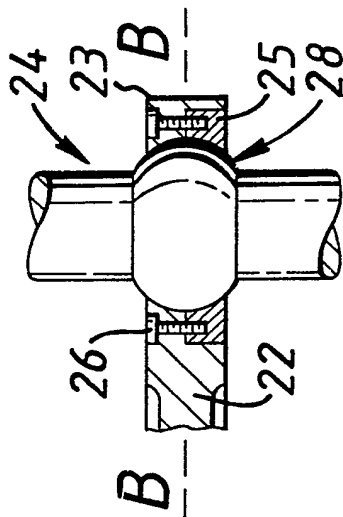


FIG. 5.

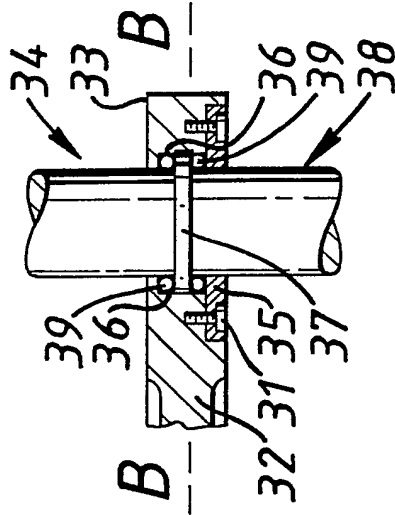


FIG. 6.

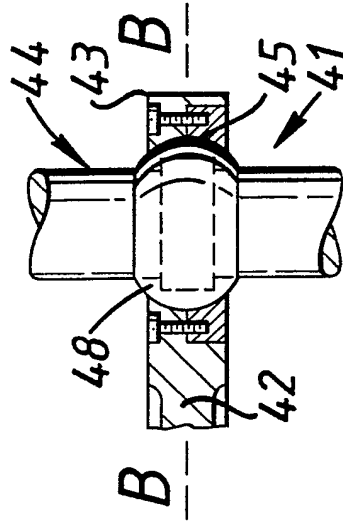


FIG. 7.

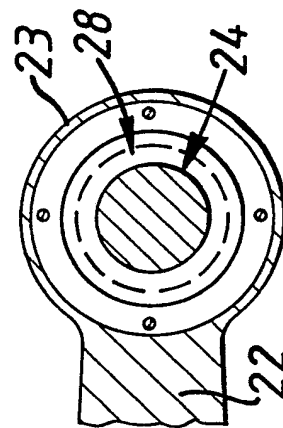


FIG. 8.

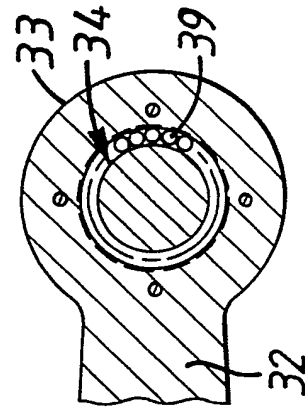
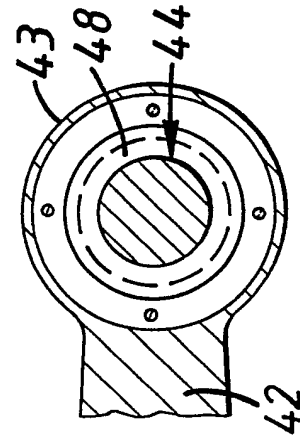


FIG. 9.



A HANDLE FOR A TOOL

The present invention relates to a handle for a tool such as a socket spanner.

Socket spanners generally use a drive means which may  
5 incorporate a ratchet drive and are also commonly  
provided with extensions. The spanner extensions are  
supplied in several sizes which are exchangeably mounted  
to the drive means of the tool and may be replaced by  
screwdrivers. The drive means may be manual or power  
10 drive.

The problem however when using the extension is that the  
arrangement may be difficult to retain in a suitable  
alignment particularly where the extension has a  
15 universal joint.

According to the present invention there is provided a  
handle for a tool comprising a handle member having a  
rotatable member mounted thereto, the rotatable member  
20 having a head extending in one direction and a tail  
extending in a second and opposite direction, the head  
and tail having means to receive a drive at the head and  
a tool or tool extension at the tail.

25 The handle for the tool of the present invention may be  
used in a number of different drive systems where tool  
alignment is required.

Use of the handle for the tool in a drive system also  
30 helps to reduce slippage of the driven and driving parts  
of the tool and thus reduce the length and difficulty of

a task. The handle for the hand tool can also assist in relieving excessive wear due to longitudinal torque applied to the tool.

5 Possible drive systems with which the handle may be used include a 6.35, 9.5 and 12.7 mm (1/4, 3/8 and 1/2 inch) ratchet drive system.

10 The handle member may be of any suitable material, such as steel. The handle member preferably has an enlarged portion at one end, the enlarged portion having a recess in which the rotatable member may be mounted.

15 The rotatable member is preferably made of steel although it may be made of any suitable material and may comprise the head and tail oppositely positioned of each other on a bearing.

20 The rotatable member may be mounted to the handle member by means of a ball joint bearing which sits into a recess in the handle member and may be held in position by retaining means.

25 The use of a ball joint bearing allows a small amount of angular movement which helps relieve excessive torque on the handle.

30 The rotatable member in the ball joint bearing preferably has a nylon bearing surface in order to enhance the angular movement of the bearing.

35 The rotatable member may also be mounted by means of a bearing comprising on the rotatable member a flange and in the handle member at least one ball or roller bearing race and wherein the bearing sits in a recess in the

handle and is held in position by retaining means.

5 The ball or roller bearing race may be positioned either above and/or below the flange. Use of the ball or roller bearing race allows the bearing to turn more smoother and faster which is particularly useful when the handle is used with a power driven ratchet drive system.

10 The length of the rotatable member is preferably about 130 mm (5 inches) long when used with a 6.35 mm (1/4 inch) ratchet drive system. The rotatable member may also be about 250 mm (10 inches) in length when used with a 12.7 mm (1/2 inch) ratchet drive system. The length of the rotatable member is therefore influenced by the drive  
15 system with which it is used. The appropriate length for the drive system facilitates correct use of the handle with the drive system.

20 Specific embodiments of the present invention will now be described by way of example and with reference to Figures 1 to 9 wherein:-

Figure 1 shows a plan view of a handle for a tool,

25 Figure 2 shows an elevated view of the handle of Figure 1,

Figure 3 shows a section view along the line A-A of Figure 2,

30 Figures 4 to 6 show a partial section view of a handle member and enlarged portion of the handle and a partial side view of a rotatable member,

35 Figures 7 to 9 show a section view of Figures 4 to 6

along the line B-B respectively.

With reference to Figures 1 to 3 there is shown a handle  
1 for a tool (not shown) comprising a handle member 2  
5 having an enlarged portion 3 at one end thereof and a  
rotatable member 4 mounted in a recess 5 in the enlarged  
portion 3 substantially at right angles to the  
longitudinal axis through the enlarged portion 3. The  
handle member 2 is made of steel and is substantially  
10 rectangular in cross section.

The enlarged portion 3 located at one end of the handle  
member 2 is also made of steel and is substantially  
discoid in plan view with a centrally located recess 5.

15 The rotatable member 4 comprises a head 6 and a tail 7  
mounted at each end of a bearing 8 which is enclosed  
within the recess 5. The rotatable member 4 is  
approximately 120 mm (5 inches) long and is intended for  
20 use with a 6.35 mm (1/4 inch) drive system. The  
rotatable member 4 may also be made 250 mm (10 inches)  
long for use with a 12.7 mm (1/2 inch) drive system.

25 The head 6 and tail 7 comprise female and male portions 9  
and 10.

The female portion 9 is in the form of a cuboid shaped  
depression positioned at an extreme end 11 of the  
cylindrically shaped head 6.

30 The male portion 10 is in the form of a cube shaped  
protrusion positioned at an extreme end of the tail 7  
furthest from the bearing 8.

35 The bearing 8 in Figure 3 is shown to comprise on the



rotatable member a flange 14 which sits into the similarly dimensioned recess 5. A plate 15 serves to hold the bearing 8 in position and is secured in place by means of screws 16.

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In use with a drive system the handle 1 for the tool serves to retain alignment of the drive tool and extensions. A drive extension (not shown) connected to the head 6 is driven by a ratchet (not shown) and its rotational drive is transferred by way of the rotatable member 4 to the tool extension (not shown) connected to the tail 7. Thus the handle 1 can be used to compensate for any misalignment without affecting the drive system.

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15 From Figures 4 to 9 additional embodiments of the present invention are shown.

Figures 4 and 7 show a handle member 22 having an enlarged portion 23 in which a rotatable member 24 is mounted. The rotatable member 24 comprises a ball joint bearing 28 with a head and tail (not shown) which extend from opposite sides of the bearing 28. A plate 25 holds the rotatable member 24 in position and is secured in place by means of screws 26.

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The use of the ball joint bearing 28 allows for a certain amount of angular movement.

Figures 5 and 8 show another embodiment wherein a rotatable member 34 is mounted by means of a bearing 38 in an enlarged portion 33 of a handle member 32. The bearing 38 comprises on the rotatable member 34 a flange 37 and sits into a recess 36 in the enlarged portion 33. A ball bearing race 39 is also positioned above and below the flange 37. The ball bearing race 39 serves to enable

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the member 34 to rotate freely on its longitudinal axis. The rotatable member 34 is held in position by means of a plate 35 secured in place by screws 31.

5        Figures 6 and 9 show part of a handle 41 for a tool (not shown) comprising a handle member 42 having an enlarged portion 43. The enlarged portion 43 has a recess 45 in which rotatable member 44 is mounted. The rotatable member 44 comprises a head and tail (not shown) mounted  
10        at opposite ends of a bearing 48. The bearing 48 is a ball joint bearing which has a nylon bearing surface.

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CLAIMS

5 1. A handle for a tool comprising a handle member having  
a rotatable member mounted thereto, the rotatable member  
having a head extending in one direction and a tail  
extending in a second and opposite direction, the head and  
tail having means to receive a drive at the head and a tool  
10 or tool extension at the tail.

2. A handle for a tool as claimed in claim 1, wherein the  
rotatable member is mounted to the handle member by means  
of a ball joint bearing which sits into a recess in the  
15 handle member and is held in position by retaining means.

3. A handle for a tool as claimed in either claim 1 or  
claim 2, wherein the rotatable member in the ball joint  
bearing has a nylon bearing surface.

20 4. A handle for a tool as claimed in claim 1, wherein the  
rotatable member is mounted by means of a bearing  
comprising on the rotatable member a flange and in the  
handle member at least one ball or roller bearing race and  
25 wherein the bearing sits in a recess in the handle member  
and is held in position by a retaining means.

5. A handle for a tool as claimed in any one of the  
preceding claims, wherein the rotatable member is about 130  
30 mm (5 inches) long.

6. A handle for a tool as claimed in any one of the  
preceding claims, wherein the rotatable member is about 250  
mm long.

7. A handle for a tool as claimed in any one of the preceding claims, wherein the handle member has an enlarged portion at one end, the enlarged portion having a recess in which the rotatable member is mounted.

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8. A handle for a tool substantially as hereinbefore described with reference to Figures 1 to 3 of the accompanying drawings.

10 9. A handle for a tool substantially as hereinbefore described with reference to Figures 4 and 7 of the accompanying drawings.

15 10. A handle for a tool substantially as hereinbefore described with reference to Figures 5 and 8 of the accompanying drawings.

20 11. A handle for a tool substantially as hereinbefore described with reference to Figures 6 and 9 of the accompanying drawings.

12. A drive system for a tool comprising a handle for the tool as claimed in any one of claims 1 to 11.

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**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application number

9117708.9

**Relevant Technical fields**

(i) UK Cl (Edition K ) B3N

(ii) Int Cl (Edition 5 ) B25B

Search Examiner

V L C PHILLIPS

**Databases (see over)**

(i) UK Patent Office

(ii)

Date of Search

24 DECEMBER 1991

Documents considered relevant following a search in respect of claims 1-12

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
A	GB 2193135 A (YANG) whole document	-

Category	Identity of document and relevant passages

### Categories of documents

X: Document indicating lack of novelty or of inventive step.

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P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family, corresponding document.

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**PUB-NO:** GB002248572A  
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**PUBN-DATE:** April 15, 1992

**INVENTOR-INFORMATION:**

<b>NAME</b>	<b>COUNTRY</b>
GRIFFITHS, COLIN PAUL	N/A

**ASSIGNEE-INFORMATION:**

<b>NAME</b>	<b>COUNTRY</b>
GRIFFITHS COLIN PAUL	N/A

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**PRIORITY-DATA:** GB09018160A (August 17, 1990)

**INT-CL (IPC):** B25B013/02 , B25B023/16

**EUR-CL (EPC):** B25B013/46 , B25B023/00 , B25F001/02

**US-CL-CURRENT:** 81/177.1

**ABSTRACT:**

CHG DATE=19990617 STATUS=O> The tool comprises a handle 2 having a rotatable member 4 mounted thereto, the rotatable member having a head 6 extending in one direction and a tail 7

extending in a second and opposite direction, the head and tail 6, 7 having means to receive a drive at the head and a tool or tool extension at the tail. The rotatable member 4 is mounted by means of a bearing such as a flush bearing which may have a ball or roller bearing race or a ball joint bearing. 